

REMARKS

This is in response to the Office Action mailed August 7, 2006.

Claims 1 through 6 are currently pending in the application.

Claims 1 through 6 stand rejected.

Applicant has amended 1, 3, and 5, and respectfully request reconsideration of the application as amended herein.

Supplemental Information Disclosure Statements

Please note that Supplemental Information Disclosure Statements were filed in the above-referenced application on March 3, 2006, and August 7, 2006, but that the undersigned attorney has not yet received any indication that the references cited in the Supplemental Information Disclosure Statements have been considered in the above-referenced application. It is respectfully requested that the references cited in the Supplemental Information Disclosure Statement of March 3, 2006, and August 7, 2006, be considered and made of record in the above-referenced application and that an initialed copy of the Form PTO/SB/08A that accompanied the Supplemental Information Disclosure Statements be returned to the undersigned attorney as evidence of such consideration.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent 6,166,434 to Desai et al. in view of U.S. Patent 5,552,635 to Kim et al., and further in view of U.S. Patent 6,451,155 to Toy et al.

Claims 1 through 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Desai et al. (U.S. Patent 6,166,434) in view of Kim et al. (U.S. Patent 5,552,635), and further in view of Toy et al. (U.S. Patent 6,451,155). Applicant respectfully traverses this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must

be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

Turning to the cited prior art, the Desai et al. reference teaches or suggests a two sided die clip, not a four sided enclosed cap, for use in semiconductor flip chip packaging as a replacement for the combination of a heat spreader and stiffener, a packaging method using the two sided die clip, and a semiconductor package incorporating the two sided die clip. The two sided die clip engages the die while leaving some space open around the perimeter, two sides of the die, to provide access to the die. An underfill material is dispensed into the gap between the die and the substrate through an opening in the die clip. The underfill material is then cured, the two sided die clip providing a heat sink. A BGA process may then be used to apply solder balls to the underside of the substrate for bonding of the package to a circuit board for use.

The Toy et al. reference teaches or suggests silicon-containing polymeric adhesives (a silicon elastomeric material) used to attach a heat sink to a multi-chip module.

The Kim reference teaches or suggests a cap having a hole in a substrate allowing communication with the interior of the cap wherein the cap is sealed to a substrate to prevent the flow of mineral oil used as a dielectric fluid from the cap. The cap does not contact a semiconductor located therein.

Applicant asserts that any combination of the Desai et al. reference, the Toy et al. reference and the Kim reference cannot and does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed inventions of independent claims 1, 3, and 5 because there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings, if the references are combined the Desai et al. reference is destroyed for its intended purpose, and any combination of the cited prior art fails to teach or suggest all the claim limitations.

Applicant asserts that there is not suggestion or motivation whatsoever set forth in any of the cited prior art Desai et al. reference, the Toy et al. reference, and the Kim reference to either modify the Desai et al. reference or to combine the reference teachings to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed inventions of independent claims 1, 3, and 5. Applicant asserts that solely Applicant's disclosure provides any suggestion or motivation for any combination of such cited prior art. Applicant asserts that because the teaching or suggestion to make the claimed combination and the reasonable expectation of success is found solely in Applicant's disclosure, any rejection based upon such cited prior art cannot and does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed inventions of independent claims 1, 3, and 5. Accordingly, independent claims 1, 3, and 5 are allowable as well as the dependent claims therefrom.

Applicant further asserts that the rejection of claims 1 through 6 under 35 U.S.C. § 103 based upon any combination of the cited prior art Desai et al. reference, the Toy et al. reference, and the Kim et al. reference an impermissible hindsight reconstruction of the claimed inventions by picking and choosing among the elements of the cited prior art to reconstruct the claimed inventions. Such a hindsight reconstruction of the claimed inventions of independent claims 1, 3, and 5 is neither within the ambit nor purview of 35 U.S.C. § 103 and clearly improper.

Additionally, Applicant asserts that the proposed combination of the Desai et al. reference in view of the Toy et al. reference and in further view of the Kim et al. reference destroys the teachings and suggestions of the Desai et al. reference for its intended purpose and destroys the Kim reference for its intended purpose thereby failing to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed inventions of presently amended independent claims 1, 3, and 5. The Desai et al. reference teaches or suggests a two sided die clip, not a four sided enclosed cap, having only two sides engaging the die while leaving some space open, two sides of the semiconductor die are open, open around the perimeter to provide access to the die using an underfill material dispensed into the gap between the die and the substrate through an opening in the die clip. The Kim et al. reference teaches or suggests a cap having a hole in a substrate to which the cap is sealed to a substrate to prevent the flow of mineral oil used as a dielectric fluid from the cap. Applicant asserts that the inclusion of a hole

in the Desai et al. die clip is untenable since there is no reason to include a hole in a two sided clip, not a four sided enclosed cap, which is already open on two sides. Additionally, Applicant asserts that the two sided clip of the Desai et al. reference does not need a hole therein as it already has at least two open sides to allow the insertion of underfill between the bottom of the semiconductor die and the upper surface of the substrate to surround the solder balls located therebetween. Applicant asserts that modifying the two sided clip of the Desai et al. reference to include a hole therein destroys or diminishes the ability of the clip to transfer heat from the semiconductor device making the die clip unable to perform its intended purpose of being sealed with underfill material between the semiconductor device and the substrate while transferring heat through the upper portion of the clip from the semiconductor device. Additionally, Applicant asserts that any inclusion of a hole in the Kim et al. cap destroys its function as the cap is not capable of retaining mineral oil therein which is inserted into the cap through a hole in the substrate which is subsequently filled. Accordingly, any combination of the Desai et al. reference in view of the Toy et al. reference and in further view of the Kim reference cannot and does not establish a *prima facie* case of obviousness regarding independent claims 1, 3 and 5 under 35 U.S.C. § 103. Therefore, independent claims 1, 3, and 5 are allowable as well as the dependent claims therefrom.

ENTRY OF AMENDMENTS

The amendments to claims 1, 3, and 5 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application to comply with the provisions of 35 U.S.C. § 132. Further, the amendments do not raise new issues or require a further search.

CONCLUSION

Claims 1 through 6 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicant's undersigned attorney.

Respectfully submitted,



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